

REMARKS

The prior Office Action mailed on March 20, 2009 did not comply with the requirements of MPEP § 707.07(i) because no reasons were given for the rejection of claim 9, nor was claim 9 indicated as allowable. The undersigned called the Examiner for clarification and the instant substitute Office Action was mailed on July 23, 2009. Applicants filed a response to the prior Office Action on July 20, 2009 to avoid extension of time fees, and this substitute reply is now filed as required in response to the new Office Action. The amendments made herein are identical to the amendments filed on July 20, 2009.

However, it is again respectfully requested that the Examiner issue a new non-final Office Action including an explanation of the reasons for rejection of any claims rejected under 35 U.S.C. § 102(b). In the present Office Action, the Examiner has only referenced portions of U.S. patent 5,202,403 by column and line number to support the instant 35 U.S.C. § 102(b) rejections, but it is unclear to Applicant how said referenced disclosure is being applied to the claims to support said rejection. The Office Action is not in compliance with 37 C.F.R. § 1.104(c)(2), which states the following:

(2) In rejecting claims for want of novelty or for obviousness, the examiner must cite the best references at his or her command. When a reference is complex or shows or describes inventions other than that claimed by the applicant, the particular part relied on must be designated as nearly as practicable. The pertinence of each reference, if not apparent, must be clearly explained and each rejected claim specified.

See also MPEP § 707. The pertinence of each reference with respect to the rejections under 35 U.S.C. § 102(b) is not apparent for each claim, and there is no explanation specifying why each claim is rejected. A new non-final Office Action including an explanation of the reasons for rejection is respectfully requested.

Claims 1-6, 9-12 and 18-20 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. patent 5,202,403 to Doering. It is respectfully submitted that the rejection is not well taken. Particularly, Doering relates to resole resins, i.e. thermosetting resins

obtained by the base-catalyzed reaction of a phenol and formaldehyde, which are different than the phenol resins of the claimed invention. Applicants claim phenol resins that are chemically different than the resole resins of Doering.

Doering teaches a lignin-modified phenol-formaldehyde resole resin useful in preparing an adhesive composition for bonding veneer sheets to make plywood or other laminated wood products together (see column 3, lines 12-15). Doering teaches forming an alkaline phenol-formaldehyde precursor resin, i.e. a resole, where phenol and formaldehyde are reacted in the presence of an alkaline material. This alkaline precursor is then reacted with lignin to form a lignin-modified phenol-formaldehyde precursor resin, forming an adhesive that is useful in bonding wood chips, veneers and sheets of plywood. This alkaline material is mandatory and forms part of the resin, and the phenol and formaldehyde are not reacted without the alkaline being present. As stated at col. 4, lines 38-57 of Doering:

In order to facilitate the reaction of phenol and formaldehyde, the reactants are first heated to about 45° C. to about 50° C., and then an alkaline material is added to the reactants in an amount sufficient to provide an alkaline (OH) to phenol (A/P) mole ratio of between 0.04 and 0.08. Typically, alkaline material is added in an amount within the range of from about 0.25 wt % to about 1.0 wt % based on the total weight of the lignin-modified phenol-formaldehyde resole resin to be prepared. Usually, the alkaline material is added within the range of from about 0.35 wt % to about 0.7 wt %, and often within the range of from about 0.40 wt % to about 0.50 wt %.

The alkaline material preferably is added slowly to the mixture of phenol and formaldehyde, while carefully cooling the reactants to control the exothermic reaction. The alkaline material acts as a catalyst to generate methylolphenol as part of the precursor resin. The temperature is controlled so that the temperature of the reaction is allowed to reach about 50° C. to about 65° C.

As shown above, the precursor resins taught by Doering that are not yet modified with lignin are *alkaline* phenol-formaldehyde resins that are chemically different than the claimed phenol resins. Particularly, the claimed phenol resins are not alkaline resole

resins, and the claimed phenol resins are not formed by reacting phenol and formaldehyde in the presence of an alkaline material such as alkali metal hydroxides, alkaline earth metal hydroxides, alkali metal carbonates or alkali lignin. Indeed, both the alkaline phenol-formaldehyde precursor resin as well as the lignin-modified phenol-formaldehyde precursor resin product are chemically different than the claimed phenol resins.

Applicants further refer the Examiner to col. 5, lines 3-7 where Doering references the formation of an aqueous reaction mixture including phenol, formaldehyde and an alkaline material, where the aqueous reaction mixture has a mandatory pH above 7. Doering does not teach any reaction mixture or resin product that includes only phenol and formaldehyde, and more particularly, wherein the phenol resin has a polydispersity of maximally 1.85 and a weight average molecular weight (M_w) of maximally 600.

In the present invention, the chemical reactions that occur in the preparation of the claimed phenol resin can be considered to comprise three sub-reactions: 1) an activation reaction; 2) an addition reaction; and 3) a condensation reaction. The conversion value for the addition reaction generally ranges between 50% and 100%, and is preferably 90%. The conversion value of the condensation reaction generally ranges between 0% and 50%, preferably between 15% and 25%. If a phenol resin that meets one or more of the aforesaid requirements is to be prepared, the conversion of volatile resin forming components, such as formaldehyde and phenol, is preferably at least 75%, more preferably at least 90%. Doering fails to teach or suggest such phenol resins, fails to teach the claimed method for forming moulded products with the phenol resin of claim 1, and fails to teach moulded products having a core of solid inert parts impregnated with the phenol resin according to claim 1.

Applicants respectfully submit that Doering fails to clearly and unequivocally disclose the claimed subject matter, and the Examiner has not established that the instant claims are anticipated by the applied reference. As stated in In re Arkley,

A reference must clearly and unequivocally disclose the claimed subject matter or direct those skilled in the art to the claimed subject matter without any need for picking, choosing and combining various disclosures not directly related to each other by the teachings of the cited reference.

In re Arkley, 455 F.2d 586, 587, 172 USPQ 524, 526 (CCPA 1972); see also In re Ruschig, 343 F.2d 965, 974, 145 USPQ 274, 282 (CCPA 1965). Further, as explained by Judge Learned Hand in Dewey v. Almy Chem. Co. v. Mimex Co., 124 F.2d 986, 989 (2d Cir. 1942),

No doctrine of the patent law is better established than that a prior patent or other publication to be an anticipation must bear within its four corners adequate directions for the practice of the patent invalidated. If the earlier disclosure offers no more than a starting point for further experiments, if its teaching will sometimes succeed and sometimes fail, if it does not inform the art without more how to practice the new invention, it has not correspondingly enriched the store of common knowledge, and it is not an anticipation.

This was recently affirmed by the Court of Appeals for the Federal Circuit (CAFC) on October 20, 2008 in the case of Net MoneyIn v. Verisign, affirming that anticipation takes more than simply locating each element within the four corners of a single document. To anticipate, the prior art must teach all the claim elements and the claimed arrangement. Net MoneyIn v. Verisign, No. 2007-1565 (Fed. Cir. 2008). Quoting Connell v. Sears, Roebuck & Co., 722 F.2d 1542, 1548 (Fed. Cir. 1983) to clarify what a reference must show in order to anticipate a claimed invention, the CAFC in Net MoneyIn v. Verisign repeated:

Because the hallmark of anticipation is prior invention, the prior art reference—in order to anticipate under 35 U.S.C. § 102—must not only disclose all elements of the claim within the four corners of the document, but must also disclose those elements "arranged as in the claim".

Net MoneyIn v. Verisign, No. 2007-1565 (Fed. Cir. 2008) at page 15. In this regard, the court stated that "arranged as in the claim" means "arranged or combined in the same way as in the claim." Id. at page 16. For these reasons, it is respectfully submitted that the claims are not anticipated by Doering.

With particular regard to claims 4 and 5, the Examiner has not shown where Doering describes or teaches a phenol resin having a weight percentage of phenol in the phenolic compounds that is maximally 95%, or particularly between 25% and 75%.

With particular regard to claim 6, the Examiner has not shown where Doering describes or teaches a phenol resin comprise bisphenols and polyphenols.

With particular regard to claims 9 and 10, the Examiner has not shown where Doering describes or teaches a phenol resin where the conversion of phenolic compounds, formaldehyde and/or formaldehyde-forming compounds is at least 75% or at least 90%.

With particular regard to claim 11, the Examiner has not shown where Doering describes or teaches a phenol resin that comprises one or more components selected from the group consisting of fire retardants, plasticisers, fillers, colorants and binders. To be sure, Doering describes lignin-modified resins including an additional component such as fillers. However, Doering fails to teach a non-lignin modified phenol resin as claimed that includes such additives.

With particular regard to claims 12 and 18-20, the Examiner has not shown where Doering describes or teaches a method for forming moulded products by impregnating solid inert parts with a phenol resin, as claimed, to form an assembly, and subsequently subjecting the obtained assembly to a pressing operation at an elevated temperature and an elevated pressure so as to form moulded products. As discussed above, the final resin products produced in accordance with the teachings of Doering are lignin-modified resins that are chemically different than the phenol resins of the claimed invention. The present invention does not apply lignin at all and the present invention does not relate to an adhesive composition. Rather, the claimed invention relates to a phenol resin to be used in impregnation papers. More particularly, the present invention provides a phenol resin having a chemical-physical composition such that it is possible to use heavier

impregnation papers than in the prior art for forming molded products obtained by impregnating solid inert parts, in particular impregnation paper, with phenol resin, within which impregnation papers the phenol resin distributes itself evenly, wherein said phenol resin has a polydispersity of maximally 1.85 and a weight average molecular weight (Mw) of maximally 600.

In contrast, Doering teaches adhesives that may be applied to particleboard, pressboard, plywood or the like, as well as on wood veneers and multiple panel plywoods. the lignin-modified phenol-formaldehyde precursor resin thus produced. Importantly, as described in col. 8, lines 25-55, any molded products formed with the lignin modified resin of Doering will have a Mw within the range of from about 3600 to about 14000, and an Mn within the range of from about 180 to about 250. These values are outside the range as claimed in claim 1, i.e. a weight average molecular weight (Mw) of maximally 600 and a polydispersity of maximally 1.85. Additionally, Doering discloses that the amounts of phenol and formaldehyde employed in preparing the precursor resin should be sufficient to maintain a F/P mole ratio of less than about 1.0 (see column 3, lines 65-67). In contrast, the F/P mole ratio according to the present invention is above 1.0. especially about 1.5.

For the foregoing reasons, Applicants respectfully urge that claims are not anticipated by the Doering reference and the rejections under 35 U.S.C. § 102(b) should be withdrawn. Such action is respectfully requested.

Claims 7-8 stand rejected under 35 U.S.C. § 103(a) as obvious over Doering. It is respectfully submitted that the rejection is incorrect. The arguments about Doering from above are repeated herein. Claim 7 teaches that the phenolic compounds according to claim 1 comprise low-molecular novolacs. Claim 8 teaches that the bisphenols according to claim 6 comprise p, p-bisphenol A. Neither of said claims are anticipated by Doering. The Examiner argues that it would have been obvious to one of ordinary skill in the art to produce diverse phenol resins having the desired characteristics. However, it is

respectfully submitted that the Examiner has failed to establish a case of *prima facie* obviousness in the first instance. In establishing a *prima facie* case of obviousness, it is incumbent upon the Examiner to provide a reason why one of ordinary skill in the art would have been led to modify a prior art reference or to combine reference teachings to arrive at the claimed invention. See Ex parte Clapp, 227 USPQ 972, 973 (Bd. Pat. App. & Int. 1985). To this end, the requisite motivation must stem from some teaching, suggestion or inference in the prior art as a whole or from the knowledge generally available to one of ordinary skill in the art and not from the appellant's disclosure. See, for example, Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 1052, 5 USPQ2d 1434, 1439 (Fed. Cir.), cert. denied, 488 U.S. 825 (1988).

A statement that modifications of the prior art to meet the claimed invention would have been " 'well within the ordinary skill of the art at the time the claimed invention was made' " because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish a *prima facie* case of obviousness without some objective reason to combine the teachings of the references. *Ex parte Levengood*, 28 USPQ2d 1300 (Bd. Pat. App. & Inter. 1993).

Further, there must be something in the applied references that clearly teaches or suggests that one skilled in the art should form the claimed invention upon a reading of the references, rather than the simple assumption that one could achieve the claimed invention from the teachings of the references after reading of Applicants' disclosure. *Prima facie* obviousness is a legal conclusion, not a fact, and the Examiner has provided no evidence to support the legal conclusion that it would have been obvious for one skilled in the art to arrive at the invention of claims 7 and 8.

In this regard, Applicants respectfully submit that the Examiner is reconstructing the art in light of Applicants' disclosure. The point in time that is critical for an obviousness determination is at the time the invention. "To imbue one of ordinary skill in the art with knowledge of the invention in suit, when no prior art reference or references of record

convey or suggest that knowledge, is to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher." W.L. Gore & Assocs., Inc. v. Garlock, Inc., 721 F.2d 1540, 1553, 220 USPQ 303, 312-13 (Fed. Cir. 1983). For the foregoing reasons, it is respectfully submitted that the rejection is not proper and should be withdrawn. Such action is respectfully requested.

Claims 13-17 stand rejected under 35 U.S.C. § 103(a) as obvious over Doering. It is respectfully submitted that the rejection is incorrect. The arguments about Doering from above are repeated herein. The Examiner argues that claims 13-17 present mere obvious matters of choice dependent on the desired final product which are not a manipulative feature or step of the claimed process. Applicants respectfully disagree. In the first instance, Applicants respectfully urge that the Examiner has not examined the claimed invention as a whole, but rather has focused on each of the individual features of the invention. It is clear from the disclosure of Doering that their invention relates only to adhesive compositions, particularly adhesive compositions for bonding veneer sheets to make plywood or other laminated wood products together (see column 3, lines 12-15). In contrast, the claimed invention relates to a phenol resin to be used in impregnation papers, or more particularly, a phenol resin having a chemical-physical composition such that it is possible to use heavier impregnation papers than in the prior art for forming molded products obtained by impregnating solid inert parts, in particular impregnation paper, with phenol resin, within which impregnation papers the phenol resin distributes itself evenly. It is respectfully submitted that one skilled in the art would recognize that Doering is completely unrelated to the formation of impregnation paper, and would not look to modify the Doering reference as the Examiner proposes.

It is respectfully submitted that such employs the incorrect legal standard for patentability. In determining a *prima facie* case of obviousness, it is necessary to ascertain whether or not the reference teachings would appear to be sufficient for one of ordinary skill in the relevant art having the reference before him to make the proposed substitution, combination, or other modification. In re Linter, 458 F.2d 1013, 1016, 173

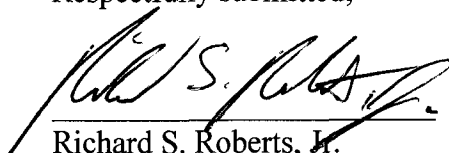
USPQ 560, 562 (CCPA 1972). To do so, the applied prior art must be such that it would have provided one of ordinary skill in the art with both a motivation to carry out the claimed invention and a reasonable expectation of success in doing so. See In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438, 1442 (Fed. Cir. 1991); In re O'Farrell, 853 F.2d 894, 902, 7 USPQ2d 1673, 1680 (Fed. Cir. 1988). There is no such motivation in the Doering reference to modify any of claims 13-17 as the Examiner proposes.

Applicants again respectfully submit that the Examiner is reconstructing the art in light of Applicants' disclosure. Obviousness cannot be determined solely after reading Applicants' teaching and an invention cannot be deemed unpatentable merely because, in a hindsight attempt to reconstruct the invention, one can find elements of it in the art. It must be shown that the invention as a whole was obvious at the time the invention was made without knowledge of the claimed invention. Where Applicants' teachings are needed to find the invention, the invention is not obvious. Ex parte Hiyamizu, 10 U.S.P.Q.2d 1393, 1394 (PTO Bd. Pat. Ap. and Int., 1988).

For the foregoing reasons, it is respectfully submitted that the rejection is not proper and should be withdrawn. Such action is respectfully requested.

The undersigned respectfully requests re-examination of this application and believes it is now in condition for allowance. Such action is requested. If the Examiner believes there is any matter which prevents allowance of the present application, it is requested that the undersigned be contacted to arrange for an interview which may expedite prosecution.

Respectfully submitted,

A handwritten signature in dark ink, appearing to read "R. S. Roberts, Jr.", is written over a horizontal line.

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